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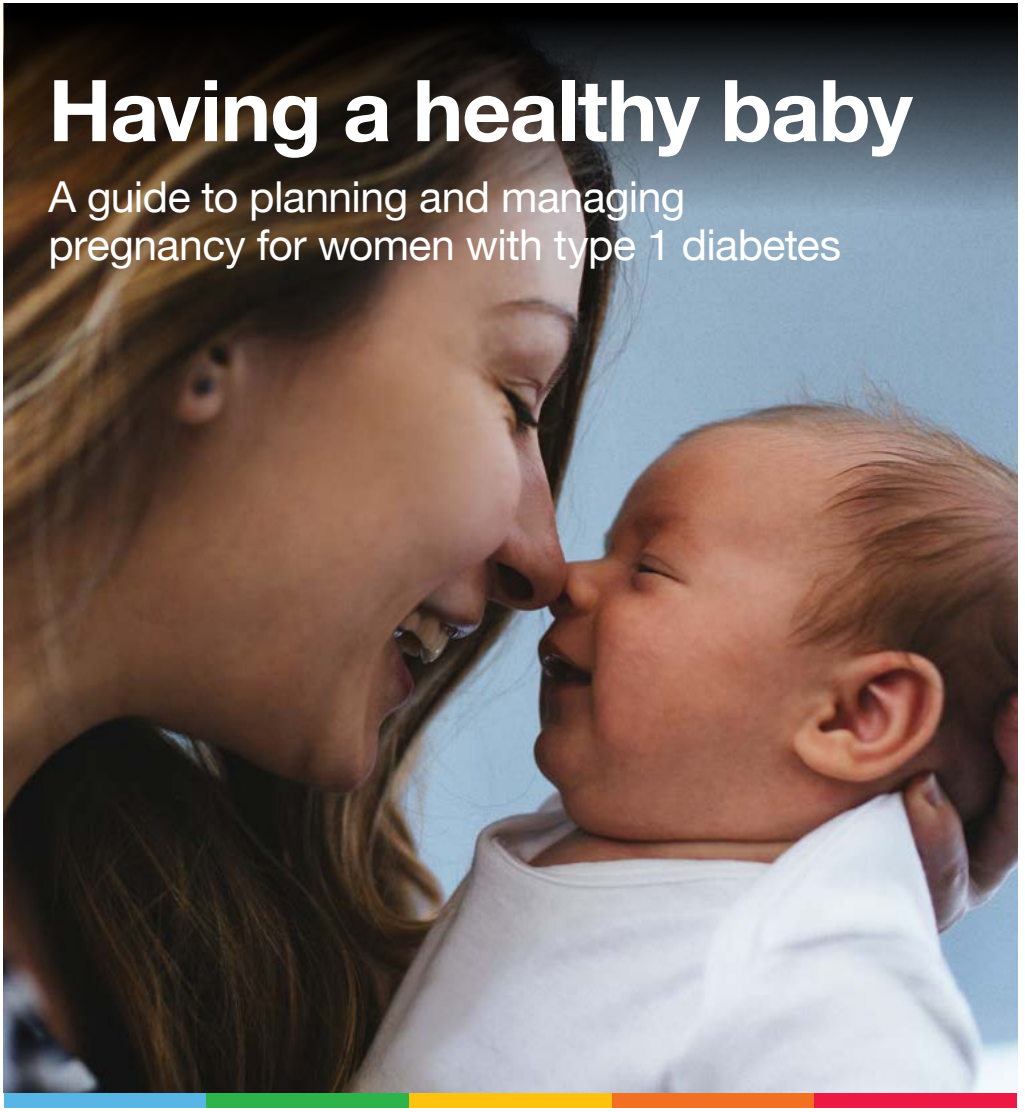
Having a healthy baby

A guide to planning and managing pregnancy for women with type 1 diabetes



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Contents

For more information go to the NDSS website:
ndss.com.au/pregnancy

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About this booklet

This booklet is for women with type 1 diabetes who are planning a pregnancy now or in the future, or who are already pregnant. It has information on preparing for pregnancy, as well how to manage diabetes during pregnancy and once the baby is born. Tips from women who have kindly shared their experience of pregnancy with type 1 diabetes, are also included throughout this booklet.

Separate booklets are available from the National Diabetes Services Scheme (NDSS) for women with type 2 diabetes or gestational diabetes.

Encourage your partner, family and friends to read this booklet as well, to help them understand more about diabetes and pregnancy. If you have any questions or need more information contact your endocrinologist, general practitioner, obstetrician, credentialled diabetes educator or accredited practising dietitian.

Planning for pregnancy

Women with diabetes can have a healthy baby, but there are some extra risks during pregnancy for both mother and baby. The good news is, that planning and preparing for pregnancy can help reduce these risks.

It's recommended that you have a review of your diabetes, and your general health, at least three to six months before you start trying for a baby and seek out specialist pre-pregnancy care. There are other aspects of planning for a healthy pregnancy too, such as, taking vitamin supplements, having a review of your current medications and routine pre-pregnancy blood tests. These topics will be discussed further in this chapter.

Why plan?

Having diabetes during pregnancy can increase the risk of health problems in your developing baby, including the risk of birth defects and early pregnancy loss (miscarriage). This risk is higher if your blood glucose levels before and during early pregnancy have not been within the target range. There is also an increased risk of complications for the mother during pregnancy, such as developing high blood pressure and pre-eclampsia, as well as having a large baby.

Research shows that planning and preparing for pregnancy, and well-managed diabetes before and during pregnancy, reduces the risk of health problems for mother and baby.

Remember that with careful planning, and with support from a team of health professionals, women with diabetes will usually have a healthy pregnancy and a healthy baby.

Your diabetes in pregnancy team

The best preparation for a healthy pregnancy starts with getting the right information and advice before you become pregnant.

When planning for, and during your pregnancy, you will benefit from the support of a 'diabetes in pregnancy team' which may include the following health professionals:

- endocrinologist (diabetes specialist doctor)
- obstetrician (pregnancy doctor)
- credentialled diabetes educator/nurse practitioner (diabetes)
- accredited practising dietitian
- general practitioner (GP)
- midwife
- psychologist
- social worker.

If needed, your doctor may also refer you to other specialists such as a renal (kidney) physician or an ophthalmologist (eye specialist).

"I have a really good medical support team… I was in regular contact with my endo, GP and ophthalmologist, and then once pregnant, an obstetrician."

Make an appointment with your diabetes health professionals as soon as you start thinking about having a baby. Ideally, at least three to six months before trying to conceive. Your health professionals can provide pre-pregnancy care to help you with managing your diabetes and organise the health checks you need to prepare for pregnancy. If you are not already seeing these health professionals, ask your GP for the referrals you need. These services may be available to you through your local diabetes centre or hospital.

All major hospitals with maternity services in Australia can provide information about pregnancy and diabetes, and some also have specialised diabetes in pregnancy services. You could also see a private endocrinologist with expertise in diabetes in pregnancy.

If you live in a rural area with limited services, ask your GP about the best options. You may consider travelling to a major hospital that has a diabetes in pregnancy service, especially if you have had any complications from diabetes. Or, you may be able to access a shared care system between your local services and a diabetes in pregnancy team in a major hospital. Telehealth may also be an option to link you and your local health professionals with specialist diabetes in pregnancy services.

If you are not sure how to access health professionals in your area, ask your GP or call the NDSS Helpline on **1800 637 700**.

"Gather a team of amazing health professionals to help you plan. There is no such thing is 'too early' to talk about your pregnancy plans…"

Planning and preparing for pregnancy

Contraception

Timing your pregnancy is important. Contraception helps you to plan your pregnancy around your personal circumstances, general health and diabetes management. No single method of contraception is perfect for everyone. Different methods suit different couples and there are many forms of contraception suitable for women with diabetes.

Only stop using contraception when you are ready to start trying for a baby. It's possible to become pregnant as soon as you stop using contraception. Discuss the most appropriate contraception for your individual needs with your GP, endocrinologist or obstetrician.

More information on contraceptive choices for women with diabetes is available on the NDSS website **ndss.com.au/pregnancy**.

Blood glucose targets

The first eight weeks of pregnancy is the time when a baby's major organs develop. So, it's important for your blood glucose levels to be as close to target as possible when you conceive and in early pregnancy. This will help to lower the risk of health problems in the developing baby and the risk of miscarriage.

Have your blood glucose meter checked and upgraded, if necessary, to make sure your blood glucose readings are accurate.

Your diabetes in pregnancy team will discuss individual blood glucose targets and a recommended haemoglobin A1c (HbA1c) with you. HbA1c is a measure of your average blood glucose levels over the past three months.

Current guidelines recommend an HbA1c of 6.5% (48mmol/mol) or less before pregnancy, but the target recommended to you will depend on the HbA1c you can safely achieve with the lowest risk of hypoglycaemia (also known as a hypo or low blood glucose level).

The right balance can be difficult to achieve, so seek as much support as you need from your diabetes health professionals to help you during this time.

Continuous or flash glucose monitoring

Continuous glucose monitoring (CGM) or flash glucose monitoring (Flash GM) may be suggested when you are planning and preparing for pregnancy.

CGM devices are small wearable monitors that measure and display your glucose levels throughout the day and night. They can be programmed to sound alarms and send warnings if your glucose levels are outside your set target range. CGM devices also display arrows to show whether your glucose levels are rising, falling or steady and how quickly this is occurring.

CGM uses a sensor placed under the skin to measure the level of glucose in the fluid between your cells. This information is sent via a transmitter to a wireless receiver, insulin pump or smartphone. The receiver allows you to view and store your glucose data, which can be uploaded for you (and your health care team) to review. This can help make decisions about changes to insulin doses or pump settings as well as food choices and physical activity.

A Flash GM device is like a CGM device, except that it does not have a transmitter and you have to scan the sensor with a reader, smartphone or smart device to check your glucose level. A Flash GM device shows the previous eight hours of glucose data. It has trend arrows to indicate if glucose levels are rising, falling or steady and how quickly they are changing. The graphs on the Flash GM reader can be reviewed to look for patterns and trends in glucose levels. A Flash GM device does not connect to an insulin pump.

In Australia, this technology is currently available as the FreeStyle Libre 2. The FreeStyle Libre 2 has optional real-time alarms for high or low glucose levels and signal loss.

CGM or Flash GM can help you and your health professionals to make decisions about changes to insulin doses or pump settings, as well as food choices and physical activity. When planning and preparing for pregnancy, this may help you with keeping your glucose levels in the target range advised by your health professionals. These devices don't replace self-blood glucose monitoring, but can reduce the number of daily finger prick blood glucose checks you need to do.

"I highly recommend a CGM. I like the constant monitoring and reassurance that it provides. While it still requires regular finger prick tests, it's great to be able to see trends throughout the day. It also is great to alert you to high or low readings, which can be set to whatever your personal targets are…"

The Australian Government provides access to subsidised CGM and Flash GM devices through the NDSS to all women with type 1 diabetes. However, access to CGM and Flash GM products are full subsidised for women with type 1 diabetes who are actively planning pregnancy, pregnant or immediately post pregnancy. To be eligible for access, women with type 1 diabetes need to be assessed by an authorised health professional and meet certain criteria. Ask your diabetes in pregnancy team for more information or go to **ndss.com.au/cgm**.

Folate

Folate (also known as folic acid) is an essential vitamin for a healthy pregnancy. It is needed for the growth and development of your baby, especially in the early stages of pregnancy. Folate is needed for the normal development of a baby's neural tube in the spine, which occurs around 4 weeks after conception.

Folate can be found in a varied diet that includes green leafy vegetables, fruit, breads and cereals, nuts and legumes. However, it's difficult to get enough folate for pregnancy from your diet alone, so folic acid supplements are recommended for all women before and during early pregnancy. Taking folic acid supplements has been shown to reduce the risk of birth defects for all women, not only those with diabetes. Ideally, you would start taking your folic acid supplement three months before your pregnancy, and continue taking it for the first three months of pregnancy (the first trimester).

Women with type 1 diabetes are advised to take a higher dose of folic acid than other women because of the increased risk of birth defects. In Australia, current guidelines recommend a total dose of 5 milligrams (5mg) folic acid supplementation a day for women with diabetes (this includes the amount contained in your folic acid supplement plus any pregnancy multivitamins). Your doctor may suggest you take one 5mg tablet each day, or just a half (2.5mg) if you are also taking other pregnancy multivitamins or supplements containing folic acid.

Talk to your diabetes health professionals about taking a folic acid supplement. You don't need a prescription to buy folic acid, but make sure you tell the pharmacist you need to buy the 5mg tablet, not the usual 0.5mg tablet.

Insulin

When planning your pregnancy, talk to your diabetes health professionals about the types of insulin you are currently using and the advantages and disadvantages of different types during pregnancy. Also discuss the method of insulin delivery, whether you use an insulin pump or have multiple daily injections.

Insulin pumps

Insulin pump therapy is becoming increasingly popular with women with type 1 diabetes. You may want to think about this for yourself and discuss an insulin pump with your diabetes team before you start planning for your pregnancy.

An insulin pump is a small device that you wear constantly. It has a small cannula that delivers insulin under your skin and is changed every two to three days. The pump continuously delivers a small amount of rapid-acting insulin (basal dose), and also allows you to program insulin to be delivered to cover your food intake (bolus dose) or to correct a high blood glucose level back to the target range (correction dose). Insulin pumps can be beneficial for women wanting to lower their HbA1c before pregnancy, but it's still possible to meet blood glucose targets using multiple daily insulin injections.

For more information about insulin pumps including cost and availability talk to your diabetes health professionals. The Australian Government provides access to subsidised insulin pump consumables through the NDSS for people living with type 1 diabetes. For more information go to **ndss.com.au/insulin-pump-consumables**.

Review of medications

Not all medications are safe to use during pregnancy, so a review of all medications you are taking is an important part of planning and preparing for pregnancy.

Some medications will need to be stopped or changed before pregnancy and then only restarted after pregnancy, or sometimes not until after you have finished breastfeeding. This is because they are not safe during pregnancy or breastfeeding.

All medication that you are taking, including medication for lowering cholesterol and blood pressure, must be reviewed before you become pregnant, or as soon as possible after you find out you are pregnant. This includes those prescribed by your doctor, as well as those bought over the counter from your pharmacy or supermarket.

Diabetes-related complications screening

Before pregnancy it's important to be checked for any diabetes-related complications in your kidneys, eyes and nerves. Some women may also be advised to have a check of their heart health prior to pregnancy. You will need to have your kidneys and eyes checked during your pregnancy as well.

Kidneys

Your doctor will ask you to have a urine test to check the amount of protein/albumin passing through your kidneys. You will also have a blood test to check the function of your kidneys. If there are any problems, you may need to see a kidney specialist before pregnancy and you will need to be monitored carefully during your pregnancy (especially in relation to your blood pressure). Even minor kidney problems (such as slightly increased levels of albumin or protein in the urine) can increase the risk of developing high blood pressure during pregnancy. If you have any problems with your kidneys during pregnancy, your baby's growth will need to be monitored carefully.

Eyes

Make an appointment to see an optometrist or an ophthalmologist (a specialist eye doctor) to have the back of your eyes checked. Make sure they know you have diabetes. If you have damage to the small blood vessels at the back of the eye (diabetic retinopathy), this needs to be stable before pregnancy. Ask your eye specialist if you need any treatment before you become pregnant.

Eye problems may appear or worsen during pregnancy. So, you will need to have your eyes checked regularly throughout your pregnancy and again a couple of months after you have had your baby. Usually, eye problems that occur during pregnancy improve after your baby is born.

Nerves

Your podiatrist, credentialled diabetes educator or doctor can check for nerve damage in your feet (peripheral neuropathy), using simple physical checks such as a tuning fork or a 'monofilament' that measures pressure sensation.

Some women with longstanding diabetes may develop another type of nerve damage called autonomic neuropathy. This can lead to problems with stomach emptying (feeling full or bloated), bowel movement (diarrhoea, constipation) and unstable blood pressure.

In pregnancy, these problems can worsen and become more difficult to manage. Problems with stomach emptying can also increase the risk of hypos. If you have any of these complications, discuss them with your doctor before trying to become pregnant.

Heart

You may be advised to have a check of your heart health before pregnancy. This includes checking for symptoms of heart problems. If you have any symptoms of heart problems or history of heart disease further checks will be recommended before pregnancy.

Advanced diabetes-related complications

If you have any advanced diabetes-related complications, discuss the risks of pregnancy with your endocrinologist/diabetes specialist, as well as other medical specialists (such as your ophthalmologist and kidney specialist), **before** planning to become pregnant. Pregnancy can put additional stress on your body and some diabetes-related complications can worsen during pregnancy, such as kidney disease and retinopathy (eye damage). Your specialist medical professionals can provide information and advice suited to your individual circumstances.

Blood pressure

If you have high blood pressure, see your doctor before becoming pregnant, especially if you are taking any medication.

High blood pressure needs special attention as it increases the risk of problems in pregnancy for you and your baby. You may need to stop certain blood pressure medications or change your blood pressure medications before trying to become pregnant.

Dental check

The hormonal changes during pregnancy can affect your teeth and gums. It's a good idea to visit your dentist for a check-up before you become pregnant and keep up good dental hygiene before, during and after pregnancy.

"…I saw an ophthalmologist prior to conceiving to see how my eyes were prior to any pregnancy changes. I also saw my GP for more routine checks. I visited the dentist and made sure my teeth were in good condition and any work that needed to be done was completed before trying to conceive".

A healthy weight

Aim for a healthy weight before becoming pregnant. A healthy eating plan and regular physical activity can help with weight management.

The weight gain recommended for pregnancy depends on your weight range before you conceive. It's a good idea to see an accredited practising dietitian for guidance on pregnancy specific nutrition needs and your personal weight gain target. Some weight gain is expected during a healthy pregnancy. It's not advisable to aim to lose weight while you are pregnant. However, you also need to take care to not 'eat for two' and continue to be active during pregnancy (see page 17).

The table below shows the recommended weight gain targets for pregnancy depending on your pre-pregnancy weight range. This is calculated using your body mass index (BMI) which is your weight (kg) divided by your height (m) x height (m).

Pre-pregnancy BMI	Weight range	Recommended pregnancy weight gain
< 18.5	Underweight	12.5–18kg
18.5–24.9	Healthy weight	11.5–16kg
25–29.9	Overweight	7–11.5kg
> 30	Obese	5–9kg

Institute of Medicine, 2009

Nutrient supplements

As well as a folic acid supplement, it is recommended that all women who are considering pregnancy, currently pregnant or breastfeeding take an iodine supplement of 150 micrograms (150ug or mcg) a day. Women with an overactive thyroid or Graves' disease should see their doctor for advice before taking an iodine supplement.

If you are concerned about other nutrients, speak to your accredited practising dietitian about your usual dietary intake and ask whether you need multivitamins or other supplements.

Immunisation

Your GP will arrange blood tests to check your immunity to rubella (German measles) and varicella zoster (chickenpox). Contracting rubella when you are pregnant can lead to blindness, deafness and abnormalities in your baby. If you are not immune, you should be vaccinated at least one month before becoming pregnant. Your doctor will also check your exposure/immunity to other conditions such as hepatitis B, and may recommend you get vaccinated if you have no immunity. You will be advised to have influenza (flu) and whooping cough (pertussis) vaccinations during your pregnancy. Discuss immunisations for pregnancy with your doctor, including current recommendations regarding COVID-19 vaccination.

Blood tests

Your doctor will check your thyroid function and screen for coeliac disease. They may also check your B12 and vitamin D levels.

Smoking, drugs and alcohol

Smoking increases the risk of damage to blood vessels in the heart, brain, feet and kidneys. The risk is higher in people with diabetes. Smoking also harms the growth and development of your unborn baby. You can ask your diabetes in pregnancy team about strategies to quit, or you can call the QUITLINE on **13 78 48** or visit **quit.org.au**. Alcohol and recreational drugs increase the risk of miscarriage and harm your baby, and should be completely avoided.

"I had been under the care of an excellent endocrinologist for about 10 years prior and we often discussed contraception and the need to plan pregnancy when the time came. By the time I was ready to actively plan, I knew that this stage would include taking supplements in the months prior, ensuring that my HbA1c and time in range we as close as possible to ideals, and all complications screenings and bloods checked prior to conceiving".

Emotional health

The intensive diabetes management needed to achieve optimal blood glucose levels before conceiving, and throughout the early stages of pregnancy can be demanding and stressful. It's common to feel worried, overwhelmed and uncertain at times.

This can be a challenging time in your life, so be sure to seek the support you need. Talk to your partner, family, friends and health professionals about how you are feeling. If you need additional support, your health professionals can also advise you about support services available in your local area.

"Make sure you have strategies in place for your mental health as well as physical health. Diabetes is tough even without being pregnant. Have good people around you that you trust. And keep in mind that it may be hard at certain times, it will pass, and in the end, it is very much worth it".

Unexpected pregnancy

If you find you are pregnant sooner than you intended, organise an immediate appointment at your closest maternity hospital or contact your endocrinologist or credentialled diabetes educator. These health professionals will work with you to achieve the best outcome for you and your baby.

ACTION:

The following checklist summarises the advice in this section.

- **Contraception and general pregnancy advice:** Ask your GP, endocrinologist or obstetrician for help to choose the best contraception for you and your partner while you are planning and preparing for pregnancy.
- **Referrals:** Ask your GP for referrals to see diabetes health professionals such as an endocrinologist, credentialled diabetes educator/diabetes nurse practitioner and accredited practising dietitian, and discuss your options for specialised maternity care.
- **Blood glucose targets:** Aim for an HbA1c of 6.5% (48mmol/mol) or less before pregnancy (or as close to this target as possible, depending on your risk of hypos). Discuss individual targets with your health professionals.
- **Folic acid supplements:** Start taking high-dose (2.5-5mg/day) folic acid, ideally three months before becoming pregnant and continue during the first three months of pregnancy.
- **Review insulin therapy:** Talk to your health professionals about whether the type of insulin you are taking and your insulin doses need any changes. Consider whether an insulin pump might be a good option for you.
- **Medications:** Ask your doctor to review all of the medications you are taking to check if they are safe to take during pregnancy.
- **Diabetes-related complications:** Have a full complications screening, and any complications treated and stabilised before becoming pregnant.
- **Continuous or flash glucose monitoring:** ask your diabetes health professionals for information about CGM or Flash GM devices and access through the NDSS.
- **Blood pressure:** Have your blood pressure checked and stabilised before becoming pregnant.
- **Weight management:** Aim for your weight to be as close as possible to the healthy range before pregnancy, and discuss pregnancy weight gain with your health professionals.
- **Diet and supplements:** Take a supplement that contains at least 150 micrograms (150ug or mcg) of iodine and check with your doctor and/or accredited practising dietitian whether you need to take multivitamin or other supplements.
- **Vaccinations:** Make sure your vaccinations are up to date.
- **Smoking:** If you are a smoker, stop smoking - ask your health professionals for help.
- **Alcohol and other drugs:** Avoid alcohol and other drugs completely during pregnancy.

Eating well and physical activity

Healthy eating and regular physical activity are essential for your good health, and the growth and development of your baby.

Healthy eating

Pregnancy is a good time to update your knowledge of food and nutrition. Your eating plan is an important part of your diabetes management and general health. Make an appointment with an accredited practising dietitian to discuss food choices during pregnancy.

Your food choices are important for providing nourishment for both you and your baby, and can help with managing your blood glucose levels. It's a good idea to review your carbohydrate counting skills, the best carbohydrate food choices for managing blood glucose levels and how to adjust your insulin to match your carbohydrate intake.

Aside from carbohydrates, there are other nutrients that need special attention in the lead-up to and during your pregnancy, including protein, iron, iodine, calcium and folate. Your accredited practising dietitian can guide you on the best food choices to meet these extra nutritional needs for pregnancy.

Protecting yourself from exposure to high-risk foods that can cause infections and harm your developing baby is very important. These infections can be caused by listeria, salmonella and toxoplasmosis which can be present in high-risk foods.

Certain types of fish also need to be limited during pregnancy due to their high mercury content. Seek advice from your accredited practising dietitian and/or state health department on guidelines for food safety during pregnancy. Alcohol can cause damage to an unborn baby, and should be avoided throughout your pregnancy.

An accredited practising dietitian can discuss the most appropriate foods for you during your pregnancy, provide information on food safety, give you advice on pregnancy weight gain, and work with you to help manage your diabetes during pregnancy.

Physical activity

Becoming pregnant does not mean you have to give up exercise or other physical activity. In fact, women with diabetes benefit from regular physical activity in pregnancy. It's a great way to relax and spend time with family and friends, and can help you with managing your diabetes.

Physical activity can help you manage your blood glucose levels and pregnancy weight gain, as well as keep you fit to prepare for the birth of your baby. It also has other benefits, such as managing pregnancy symptoms like heartburn, constipation and lower back pain. Regular physical activity is good for your emotional health and wellbeing, and can help you return to a healthy weight after you have had your baby.

Your goal, while pregnant, should be to maintain your general health and fitness. Pregnancy is not the time to begin a new or strenuous exercise routine.

Many types of physical activity are suitable during pregnancy. Talk to your doctor or midwife before starting or continuing any form of physical activity while you are pregnant.

"I am currently in my second pregnancy; chasing after a one year old is keeping me active. My insulin requirements for this pregnancy are significantly lower than in my first pregnancy".

For women with type 1 diabetes without any other medical or pregnancy complications, aim for 30 minutes of moderate physical activity on most days of the week. This can also be broken up into shorter periods of at least 10 minutes, three times a day. 'Moderate physical activity' means that while being active you will have a slight but noticeable increase in breathing and heart rate (but you should still be able to hold a conversation).

Moderate activities could include swimming, brisk walking, aqua fitness classes, stationary cycling, prenatal exercise classes or light to moderate resistance exercise.

Pelvic floor exercises during pregnancy can help with recovery after your baby is born. As your pregnancy progresses, you may find that some activities are more suitable than others.

Monitoring your daily activity by keeping an exercise diary or using a device such as an activity tracker can also encourage you to be active.

To exercise safely remember to:

- check your blood glucose levels before, during (if needed) and after exercise
- always have treatment available for hypos and check that your blood glucose levels are not low before you start exercising
- include a 5-10 minute warm up and cool down
- drink plenty of water during and after physical activity
- wear loose, light clothing to avoid overheating
- avoid exercise when you are hungry, unwell, have high blood glucose levels, ketones in your blood or urine, or a high temperature.

When exercising during pregnancy, STOP and seek medical advice if you experience chest pain, dizziness, back or pelvic pain, calf pain or sudden swelling of ankles, hands or face, contractions or vaginal bleeding or a decrease in fetal movements.

If you are already physically active, discuss your current activities with your GP or other health professionals. In many cases you may be able to continue your activities as long as it is comfortable to do so. During pregnancy, avoid activities that involve lying flat or increase the risk of falling, as well as contact or extreme sports.

HELPFUL HINTS: Physical activity

You can enjoy physical activity by incorporating activity into your daily routine. Start with 10 minutes, two or three times a day. For example, you could:

- walk your dog (or a friend's dog)
- join a pregnancy aqua fitness class
- swim or walk in water
- try pregnancy yoga or Pilates
- walk along the beach or in the park
- walk your children to and from school
- take the family to the park for a ball game
- find out about low-impact aerobics or light resistance gym programs available in your area.

Remember that you will need to consider the effect of physical activity on your blood glucose levels. Exercise generally lowers blood glucose levels, so you may need adjustments to your insulin dose or insulin pump rate. It's important to discuss physical activity with your health professionals.

Diabetes and your pregnancy

There are a number of ways that pregnancy will affect your body and your diabetes. There are also some extra risks associated with pregnancy for women with diabetes. Looking after yourself and your diabetes can help to reduce these risks.

Blood glucose targets

Your diabetes in pregnancy team will discuss individual pregnancy blood glucose targets with you. They will encourage you to check your blood glucose levels frequently and will work with you to keep these as close to the target range as possible. This includes trying to reduce the frequency of mild hypos and the risk of serious hypos, and limiting the swings in your glucose levels.

Towards the end of the first trimester of pregnancy, blood glucose levels are generally lower in pregnant women. At this stage of your pregnancy, slightly lower blood glucose targets may be suggested. The recommended HbA1c in the second and third trimester is usually 6% (42mmol/mol) or lower, but the individual target recommended for you will depend on your risk of hypos. Your target HbA1c should be discussed with your diabetes in pregnancy team.

Managing diabetes during pregnancy can be challenging - the aim is to try to keep glucose levels within your individual target range. Discuss your individual targets with your diabetes in pregnancy team.

"The fear of the unknown was the biggest challenge. Not knowing how my diabetes management might change, how the hormones would affect glucose levels or insulin requirements, etc. However, having a CGM a few months prior, I knew that I could mitigate some of the immediate risks of hypos and high glucose levels, and beyond that I did LOTS of reading to ensure that I knew roughly what to expect in each trimester..."

Low blood glucose levels (hypoglycaemia)

During the first trimester (the first three months of pregnancy) your blood glucose levels will already be changing. Around the time when most women find out they are pregnant (at four to six weeks), your blood glucose levels may be more unstable, so insulin doses may need to be changed at this time.

From around six to eight weeks, it's common to become more sensitive to insulin, which means the insulin you take works more effectively. This may continue until about 14 weeks (or around three months) into the pregnancy. During this time insulin doses may need to be reduced (usually both daytime and overnight) to avoid frequent and more severe hypos.

Some women also notice that their early warning signs for hypos (such as feeling shaky or sweating) change in pregnancy. This means that hypos can happen without much or any warning, increasing your risk of severe hypos. Frequent blood glucose monitoring can help you with adjusting your insulin doses and reducing this risk. CGM and Flash GM can also assist with the early detection of hypos by sounding alarms if your glucose level drops below the target range and by displaying trend arrows to show when glucose levels are falling.

Detecting, preventing and treating hypos are important for your own safety and wellbeing. Your partner, family, friends and colleagues may be able to help you identify hypo symptoms if you are finding it difficult to detect your hypos. Discuss hypo management with your diabetes in pregnancy team.

"…Make sure to have plenty of hypo supplies throughout the house, as sometimes I was too tired to want to get up and go to the kitchen to treat a low. So, having hypo treatment at my bedside table was very handy."

You also need to remember to check that your blood glucose levels are above 5mmol/L before driving. For more information refer to the NDSS booklet Diabetes and Driving.

Hypos have not been shown to cause harm to the baby. However, hypos can be a risk to the safety of the mother. So, treat low blood glucose levels without delay.

Treating severe hypos

Severe hypos (when you can't treat your hypo yourself and you need help from someone else) can be more common during pregnancy, particularly in the first three months.

You, your partner and family may like to meet with your doctor or credentialled diabetes educator for an information session on treating severe hypos. They can provide information on available treatments such as glucose gel and glucagon injections (GlucaGen®) and when and how to use these in an emergency. A glucagon injection is an intramuscular or subcutaneous injection that can be used to reverse a hypo in someone who has a reduced level of consciousness. It helps your body to release glucose stored in your liver and raise your blood glucose levels quickly.

ACTION:

- Get into the habit of carrying a supply of hypo treatment such as glucose tablets, glucose gel or jelly beans with you at all times. It's also a good idea to have your hypo treatment close by your bed at night.
- Check that your glucagon is in date. If not, ask your doctor for a script to get another one.

Ketoacidosis and high blood glucose levels (hyperglycaemia)

If there is not enough insulin for your body cells to be able to use glucose for energy, your blood glucose levels will rise and your body will break down fats instead for another energy source. However, fat breakdown leads to your body forming ketones which you can detect in your blood or urine. High blood glucose levels and ketones can lead to a serious condition called diabetic ketoacidosis (DKA), requiring hospitalisation.

Ketoacidosis may occur when you are unwell, have morning sickness, forget to take your insulin, don't take enough insulin or there is a problem with the delivery of insulin from your insulin pump. Vomiting or a very low carbohydrate diet are also risk factors for ketoacidosis in pregnancy. In pregnancy, ketones may be present without blood glucose levels being high, which if left untreated can develop into ketoacidosis.

The risk of ketoacidosis increases during pregnancy and is very dangerous. Ketoacidosis can be life threatening for both mother and baby.

Always check for ketones if:

- your blood glucose level is elevated (e.g. 12-15mmol or higher for 2 hours or more),
- you are unwell, or
- have symptoms of ketoacidosis such as nausea, vomiting and/or stomach pain, increased thirst and/or a dry mouth, increased urination, rapid breathing or shortness of breath, fruity-smelling breath, or feeling drowsy, weak, or confused.

To check for ketones, you can use a monitor which can detect both glucose and ketones in your blood. If you do not have access to blood ketone monitoring, you can check for ketones using urine monitoring strips (these are available where you buy your blood glucose monitoring strips). However, blood ketone monitoring is recommended wherever possible, as it is more accurate than urine testing.

If your blood glucose levels are high and there is any sign of ketoacidosis; your blood ketones are 1.5mmol/L or more (or urine ketones 2+ or more); or you have nausea/vomiting where you are unable to hold down fluids, seek urgent medical attention (call your doctor, credentialled diabetes educator, diabetes nurse practitioner or go to the Emergency Department of your nearest hospital.

Sick days

Everyday illnesses such as the flu and infections can cause your blood glucose levels to rise. If you get sick while you are pregnant you will need to be careful and check your blood glucose levels more often and check your blood or urine for ketones. You may also need to increase your insulin doses or have small frequent doses to prevent ketoacidosis.

Talk to your diabetes health professionals about what to do when you are sick, when to check for ketones and the signs of ketoacidosis. Ask them to develop a sick day management plan with you. This will help you to manage your blood glucose levels when you are unwell. Make sure you have in-date ketone monitoring strips and that you know what to do if you find ketones present.

If you, your partner or family have any concerns about your wellbeing or you are unable to follow your sick day management plan, go to the Emergency Department of your nearest hospital immediately.

HELPFUL HINTS: Illness and infections

- Develop a sick day management plan with your diabetes health professionals and follow this plan if you are unwell or have morning sickness.
- Check your blood glucose levels at least every 2 hours when you are unwell. If you are using CGM or Flash GM, it's important to also check your glucose levels with finger prick blood glucose monitoring.
- Check your blood (or urine) for ketones. If your blood ketones are 0.6mmol/L or more (or urine ketones 1+ or more) follow your sick day management plan and continue to check blood glucose and ketone levels every 1-2 hours.
- Discuss hypo management with your diabetes health professionals. If your blood glucose level is low, treat the hypo then check your blood glucose level again in 10-15 minutes to make sure it is back in the target range. If your blood glucose level is still below 4mmol/L, re-treat the hypo.
- Take your long-acting insulin (or keep the basal insulin going if you are using an insulin pump) even if you are vomiting or not eating. Talk to your diabetes health professionals about adjusting your insulin dose in this situation.
- Make sure you continue to drink plenty of fluids. If your glucose levels are low, include carbohydrate containing fluids. If your glucose levels are high, choose carbohydrate-free fluids. Refer to your sick day management plan.
- See your doctor to find out the cause of the illness.
- Seek urgent medical attention (call your doctor, credentialled diabetes educator or local emergency medical service) or go to the Emergency Department of your nearest hospital if:
  - your blood ketone reading is 1.5mmol/L or more (or your urine ketones 2+ or more)
  - you are vomiting or unable to keep food or fluids down for more than 2 hours
  - you have high blood glucose levels that are <u>not</u> improving after 2 hours or your ketone levels are rising, despite following your sick day management plan
  - you are worried about high blood glucose levels
  - you are showing symptoms of ketoacidosis
  - you are having trouble keeping your blood glucose levels above 4mmol/L, or you have had a severe hypo (when you can't treat your hypo yourself and you need help from someone else).

Morning sickness

During the first 12 to 14 weeks of pregnancy, some women feel sick first thing in the morning, some in the evenings and others in the afternoon. Other women feel sick all day long and may vomit frequently. Occasionally this may continue well into the pregnancy. If you have ongoing morning sickness, ask your health professionals about suitable nausea medication.

Frequent vomiting due to morning sickness can make it difficult to manage type 1 diabetes and may increase the risk of DKA.

HELPFUL HINTS: Morning sickness

- Keep your fluids up: sip on drinks such as water, flat diet (sugar-free) lemonade, diluted diet cordial, or diet icy poles.
- If you have been vomiting or unable to eat, or your glucose level is low, you may need to include ordinary soft drinks and cordial instead of diet drinks (refer to your sick day management plan).
- Eat small, frequent meals - talk to your doctor or credentialled diabetes educator about changing insulin doses to allow for this.
- Avoid strong food odours and rich, fatty foods.
- If mornings are a problem, snack on food like dry toast or dry biscuits before getting out of bed.
- Eat and drink slowly.
- You may find that you can tolerate cold foods better than hot food.
- Some women find ginger (tea, biscuits or tablets) to be useful.
- Ask your accredited practising dietitian for some suitable food suggestions when you have morning sickness.
- Check for ketones if your blood glucose level is 12-15mmol or higher for 2 hours or more or if you are unwell.
- Always take your insulin, but you may need to change the dose.

Medical checks and monitoring during pregnancy

Throughout your pregnancy you will need to have a number of tests to check your general health and the wellbeing of your baby, including:

- HbA1c to assess your average glucose levels during pregnancy
- full blood count to check to for anaemia
- iron studies, to make sure you are not iron deficient – your doctor will advise whether you need to take an iron supplement (most women will in the later part of their pregnancy)
- kidney function tests.

Your doctor will arrange other checks as needed.

Ultrasound scans

The main scans offered during pregnancy will include:

- **An early dating scan –** at 7 to 8 weeks to estimate your due date.
- **11 - 14 week scan –** you may be offered an ultrasound **which** includes a **nuchal translucency scan** to estimate the risk of chromosomal abnormalities (such as Down syndrome).
- **Anatomical ultrasound (second trimester scan) –** at 20 weeks to check your baby's spine, limbs and organs.
- **Growth scan –** in the last 3 months, scans will usually be done every 2 to 4 weeks to monitor the baby's growth and wellbeing, as well as to check the fluid around the baby.
- **Cardiac scan –** may sometimes be recommended to check your baby's heart.

Your doctor may also recommend extra scans if there are any additional concerns.

Non-invasive prenatal screening

Some women also choose to have a non-invasive prenatal screening (NIPS) done in early pregnancy. This blood test, which can be done as early as 10 weeks, is used to identify the risk of a number of genetic abnormalities, including Down syndrome. While more women are choosing to have this test done, it is expensive and is not covered by Medicare.

Urine tests

You will be asked to give urine samples at antenatal visits during your pregnancy. The samples are tested for albumin and protein. They can also identify the presence of any infection that may be present, that would need prompt treatment. A small amount of protein in the urine is not uncommon in pregnancy. However, a larger amount may indicate that the pregnancy has affected your kidneys or, in later pregnancy, that you are developing pre-eclampsia.

Fetal heart rate monitoring

Sometimes your obstetrician may recommend that you have cardiotocography (CTG) monitoring, to check your baby's heart rate. This test may be recommended in the later stages of pregnancy. A CTG takes about 30 minutes and involves two sensors being placed on your stomach. These sensors record an electronic trace as a graph of your baby's heart rate, and detect any contractions in your uterus.

Blood glucose monitoring

It's essential to monitor your blood glucose levels frequently during your pregnancy. You will be asked to monitor before meals and one to two hours after meals. You may, at times, be advised to do some extra monitoring, such as before bed and overnight (to look for hypos). You should also check your blood glucose levels before driving.

Monitoring will help you and your doctor to get a better understanding of your blood glucose levels so you can adjust your insulin to achieve the best possible management of your diabetes. Extra blood glucose monitoring can also help you reduce the tendency to have hypos and big swings in your blood glucose levels.

Continuous Glucose Monitoring

If you aren't already using CGM or Flash GM your diabetes in pregnancy team may suggest that you start using it during pregnancy (see page 6).

This technology can help women manage their blood glucose levels during pregnancy and with the early detection of hypos. These devices don't replace self-blood glucose monitoring during pregnancy, but can reduce the number of daily finger prick blood glucose checks you need to do. Ask your diabetes in pregnancy team for more information.

"I had never used a CGM prior to pregnancy, so it was a real treat being able to manage my levels so consistently".

The Australian Government provides access to subsidised CGM and Flash GM devices through the NDSS to all women with type 1 diabetes. However, access to CGM and Flash GM products are full subsidised for women with type 1 diabetes who are actively planning pregnancy, pregnant or immediately post pregnancy. To be eligible for access, women with type 1 diabetes need to be assessed by an authorised health professional and meet certain criteria.

Ask your diabetes in pregnancy team for more information or go to **ndss.com.au/cgm**.

"I started on a CGM which was such a different way of monitoring your levels. Mentally, it was an adjustment to always be 'on', there's no chance to forget about your levels when there's constant monitoring available. It definitely helped with keeping them in range and keeping me healthy, absolutely great, but there's a mental and emotional side to it which I wasn't expecting. …It's easy to just check it constantly and get really fixated on tracking the numbers. I certainly did and it made it feel like I was working harder, even if I wasn't really. Try to give yourself some breaks."

Diabetes-related complications screening and monitoring

Your doctor will advise you to have a baseline screening for all diabetes-related complications before pregnancy. If there are any complications, they should be assessed and stabilised before your pregnancy. You will also be advised to have further screening, or monitoring of, diabetes-related complications throughout your pregnancy.

Kidneys

Diabetes-related complications affecting the kidneys increase the risk of your blood pressure becoming a problem in the second half of pregnancy, usually after 26 weeks. If you have no signs of kidney problems or only very mild problems before pregnancy, it's unlikely that a pregnancy will have any long-term effects on your kidney function. If you already have diabetes-related kidney disease, pregnancy may cause your kidney function to worsen.

Eyes

Rapid improvements in blood glucose levels can increase the risk of developing eye problems or make any existing eye complications worse. Gradually reducing your HbA1c towards the target level before you become pregnant can reduce the risk of these problems occurring. If you have eye problems that become worse during pregnancy, laser treatment (to prevent or treat bleeding behind the eye) is safe if you need it. Eye problems that have developed during pregnancy may improve after the birth, usually by the time the baby is one year old.

Nerves

If you have autonomic nerve damage, you may experience more problems with low blood pressure during pregnancy. Delayed stomach emptying can cause vomiting that can persist throughout the pregnancy, which can be stressful and also make it difficult to maintain good nutrition. This can lead to significant problems so you should discuss with your doctor how autonomic nerve damage may affect your pregnancy.

If you have diabetes-related complications it's particularly important to have specialised management of your diabetes during pregnancy. It is best for your pregnancy to be managed in a major hospital that has a lot of obstetric and diabetes medical support as well as the best facilities for babies if they are born early or have any problems when they are born.

Pre-eclampsia and high blood pressure

Pre-eclampsia is a potentially dangerous complication of pregnancy. It includes the development of high blood pressure, protein in the urine, and swelling or puffiness in the legs, fingers and face. It is more common in women with diabetes.

Pre-eclampsia is dangerous for you and your baby. It can cause problems for your baby's growth and is a major cause of premature birth. Well-managed blood glucose levels before and throughout pregnancy can reduce the risk of pre-eclampsia but not fully prevent it.

Your doctor or diabetes in pregnancy team will check your blood pressure and urine, and look for any signs of pre-eclampsia at each visit in the later stages of your pregnancy.

You may be advised to take low-dose aspirin from early pregnancy to reduce the risk of pre-eclampsia.

ACTION:

- Visit or call your diabetes in pregnancy team regularly and understand the signs and symptoms of pre-eclampsia.

During pregnancy you will be in regular contact with your diabetes in pregnancy team. In the later stages of pregnancy, appointments may be as often as every 1-2 weeks.

Your emotional wellbeing

Becoming a mother is one of the most memorable moments in a woman's life. For women with diabetes, pregnancy also involves a lot of planning, preparation and hard work. It's not surprising that women with diabetes sometimes feel worried, stressed, anxious and uncertain during pregnancy and once the baby is born. These feelings are very normal and may come and go at different stages of your pregnancy.

It can also be a time in your life when you feel motivated and empowered to take care of yourself. It's about finding a balance between the responsibilities of taking care of your diabetes and your unborn baby and enjoying one of the most memorable times in your life.

Being pregnant and giving birth is a team effort involving you and your partner, your family, friends and health professionals. There will be more medical appointments than usual, which may feel overwhelming at times. However, these visits are also an opportunity to let your diabetes in pregnancy team know how you are feeling and to discuss any concerns or issues you have.

"Be kind to yourself and realise that type 1 diabetes can be difficult to manage at the best of times, let alone when you are pregnant."

Your diabetes in pregnancy team is well equipped to assist you with the emotional ups and downs you might go through during pregnancy. They are there to listen to your concerns and to help you get the support you need. It's best not to ignore these feelings or to delay seeking help. Looking after your emotional wellbeing is as important as looking after your physical health. Many women with diabetes describe a number of challenges before, during and after pregnancy which can impact on their emotional health.

Achieving and maintaining blood glucose targets

This is probably the most challenging aspect of managing your diabetes while pregnant. While you may have felt 'in control' of your diabetes before, you may find that this all changes once you are pregnant. Even if you follow your health professional's advice, you will still have variations in your blood glucose levels. You may feel that your health professionals don't always acknowledge how much effort you have put in and the frustration it causes. It may feel like the emphasis on blood glucose levels takes away from the positive experience of expecting a baby and what it means for you to become a mum. Seek out health professionals that you are comfortable with and who provide you with the support you need.

If you are finding it too hard to achieve your recommended blood glucose targets, talk to your doctor or credentialled diabetes educator to discuss realistic goals for you and how to achieve them.

Worrying about your baby's health

It's very normal to worry about having a healthy baby. Finding a health professional you feel comfortable with so you can openly discuss these concerns may help you to cope with these worries. Find out as much as you can about how to minimise the risk of problems during pregnancy. The support of women with diabetes who have recently become mothers can also be helpful at this time. Remember that most women with diabetes will have a healthy baby.

"There is no denying that being pregnant with type 1 diabetes takes a toll on your emotional health. Worry and stress are normal, but having worry and stress that impact your health will also take a toll on your glucose levels. My husband was incredible and ensured he knew as much about my diabetes as possible."

Unexpected pregnancy

If your pregnancy is unexpected or you find that you are pregnant sooner than intended, make an urgent appointment with your doctor and diabetes team. It is important at this time to get as much information and support as you can.

Finding out that you are pregnant may come as a shock. There are many emotions you may experience and there is no right or wrong way to feel at this time. If you're worried, confused or uncertain, talk to someone you trust about how you are feeling.

Having diabetes doesn't mean that you won't have a healthy baby. Early contact with your health professionals is vital - they will work with you to achieve the best outcome for you and your baby. Your health professionals can also refer you to local services for counselling and support at this time.

Preventing and managing hypos

Frequent and sometimes severe hypos can be a problem, particularly in the first trimester of pregnancy. This can be very stressful, particularly if your usual hypo signs and symptoms change. Frequent blood glucose checks to pick up hypos early and appropriate insulin adjustments can help reduce this risk. Your partner or family members can also help you recognise the signs of a hypo and be trained on how to administer glucagon if needed.

Managing the concerns of well-meaning partners, friends or family members

Your partner, friends or family members may worry more than usual about you at this time. You may feel that they are constantly watching you and that you are being judged about how you are managing your diabetes. While they may mean well, let your loved ones know how this makes you feel. Talk about how they could support you, what is helpful and what is not. Reassure them that you are taking care of your diabetes, but that it's not always easy. You could consider inviting them to be involved in your diabetes and pregnancy care so that they better understand your diabetes management, worry less and give you the support you need.

Going home

Taking your baby home is an exciting time and a new chapter in your life. While you may have felt that there was a lot of support available while you were pregnant, many women feel 'abandoned' at this time. You may be uncertain about things such as how to care for your baby, breastfeeding or changes to blood glucose levels and insulin requirements.

There is support available from child and family health nurses, lactation consultants and your diabetes health professionals. Before going home, talk to your health professionals about what kind of support is available to you and have a plan in place for accessing support services.

Postnatal depression

Many women experience changes in their emotions after having a baby. It's common to have the 'baby blues' in the first week after your baby is born. Postnatal depression occurs when these feelings last more than a week or two and interfere with your ability to function with your usual routines, including caring for your baby or caring for yourself.

Be aware of the signs of postnatal depression such as loss of enjoyment in your usual day-to-day activities, low self-esteem and confidence, loss of appetite, panic attacks, a sense of hopelessness or fear for your baby's wellbeing.

If you are experiencing any distressing symptoms that are causing you concern or your family or friends have noticed signs of postnatal depression, contact your doctor, midwife, or child and family health nurse who can provide you with assistance, which may include access to psychological support. Don't expect that these feelings will just go away – make sure you seek the help you need.

Emotional support

There are many ways in which other people can support you through your pregnancy, the birth and beyond. If you have a partner, initially you may be reluctant to involve them in your diabetes management, particularly if this is something that you have always managed by yourself. However, remember that pregnancy is an exciting time for couples and your partner may want to be part of this journey. Sharing your feelings and expressing your needs at this time can give you the reassurance you need.

Family and friends can also be great support people during this time. Talking openly and honestly about your emotions can help you to express your feelings, allow your loved ones to better understand the support you need and help you at each stage of pregnancy and beyond.

"I'm not sure what pregnancy would be like without diabetes, but I found my emotions were all over the place during the 1st trimester. I would often cry for no obvious reason... My husband was a great support and soon learnt that even though I was crying, I may not know why and that a hug was probably all I needed..."

Many women find it helpful to hear stories of how other women with diabetes have experienced their pregnancy. Ask your diabetes in pregnancy team if there is a support network or group you can attend to meet other women with diabetes. Some women have even formed support groups in the waiting rooms of diabetes and pregnancy clinics! Other women find online networks, forums and blogs a useful source of information and support.

As a woman with diabetes, pregnancy can be one of the most wonderful yet challenging times of your life. There are many emotions you may experience at this time, but you are not alone. Talk to your partner, family and friends about how you are feeling and ask your health professionals about accessing the support you need for your emotional wellbeing.

"...if you don't have a partner that is in it with you, find someone who can help you on the journey, because it is a challenge to always do it on your own."

ACTION:

- Ask for support from your partner, family, friends and health professionals.
- Discuss with them how they can help you.
- During pregnancy make a list of health professionals who can support you once you are home with your baby (e.g. lactation consultant, child and family health nurse, diabetes health professionals, your GP).
- Seek out counselling services if you need support.
- If you need to talk to someone immediately contact:
  - Beyond Blue Support Service on **1300 22 4636**
  - Lifeline on **13 11 14**.

Diabetes and your baby

Most women will have a healthy baby, but all pregnancies can have problems regardless of whether the mother has diabetes. Having diabetes brings some additional risks, but looking after yourself and your diabetes can help to reduce these risks.

Risks to your baby in early pregnancy

Diabetes can increase the risk of birth defects (congenital abnormalities) in babies. These abnormalities are more common when diabetes management before and during early pregnancy has not been optimal. Damage to the baby's heart, spine and kidneys can occur during the early stages of pregnancy, often before women realise they are pregnant. Miscarriage can also occur, as it can for all women. The risk of miscarriage increases when HbA1c is above the target range before pregnancy and in the early stages of pregnancy.

To reduce your risk of miscarriage and of your baby developing abnormalities, it's important to maintain the best diabetes management you can.

Risks to your baby during pregnancy

Glucose can cross the placenta to your baby, so your baby's blood glucose levels will reflect your own. If your blood glucose levels are high, the normal response of your baby will be to produce extra insulin for themselves (this occurs from about 12 weeks gestation). The combination of extra glucose and extra insulin can make your baby grow too big. Having a large baby can cause problems during labour and birth. High glucose levels during pregnancy may also increase the risk of long-term health problems for your baby.

Risks to your newborn baby

Babies may have low blood glucose levels (hypoglycaemia) after birth.

The higher your blood glucose, the higher the glucose supply will be to your baby before birth. The extra glucose stimulates the baby's pancreas to make more insulin. After birth, your glucose supply to your baby suddenly stops, but your baby may continue to produce excess insulin for several hours and even up to one or two days after birth. This can cause hypoglycaemia in the baby.

Hypoglycaemia is more likely to happen if babies are born early or if they are very small or large. Your baby could also have trouble with feeding, breathing or other medical problems. Keeping your blood glucose levels as close to target as possible during pregnancy and birth will dramatically reduce the risk of these problems.

Reducing the risks

The aim is to have your HbA1c less than 6.5% (48mmol/mol), if possible, for three months before you become pregnant and in the early part of your pregnancy (first trimester). Your diabetes in pregnancy team will discuss your personal HbA1c goal with you before you conceive.

During pregnancy, your diabetes in pregnancy team will work with you to keep your blood glucose levels as close to your target range as possible. This will help to reduce the risk of your baby growing too big or having hypoglycaemia after birth.

"Pre-pregnancy and preconception care is always about reducing risks. There were never any guarantees that my pregnancy would be perfect, the only thing I could control was to ensure that my risks were as close as possible to that of a woman without diabetes. And I can say with confidence that they were."

Does the insulin I take harm my baby?

No. It is important to know that insulin does not cross the placenta, so insulin taken by injection or given by an insulin pump, cannot harm your baby.

Will my baby be born with diabetes?

Many women understandably worry about their child developing diabetes. Like many health conditions, the risk of type 1 diabetes depends on many different factors such as genetics, race/ethnicity, where you live, as well as factors in the environment.

Overall, a child born to a mother with type 1 diabetes is at slightly higher risk of developing type 1 diabetes than a child of a mother without diabetes. **However, it's important to know that your baby will not be born with type 1 diabetes.**

If you are a woman with type 1 diabetes and your child was born before you were 25, your child's risk is about 4%. If your child was born after you turned 25, your child's risk is approximately 1%. If you developed type 1 diabetes before age 11, your child's risk is approximately double these figures.

Insulin changes during pregnancy

Insulin requirements tend to change constantly throughout pregnancy as different hormones take effect and your baby grows. You need to be prepared to adjust your insulin doses on a regular basis. It's not uncommon to need to make adjustments to your doses or pump settings at least every few days.

If you are not sure how to adjust your insulin doses or pump settings, ask your diabetes in pregnancy team for advice. Adjusting insulin doses in pregnancy is more challenging than usual, so make sure you know how to get in touch with your diabetes team and be prepared to contact them more often.

Early pregnancy changes

Many women find it extremely challenging to keep blood glucose levels in the target range in the early stage of pregnancy with so many hormonal and physical changes occurring. For around the first six to eight weeks of pregnancy your blood glucose levels may be more unstable.

Following these early pregnancy changes to your blood glucose levels, you may find that your insulin requirements are lower until the end of the first trimester. You are likely to need to reduce your insulin doses or pump delivery at this time to reduce the risk of hypos occurring, especially severe ones.

"At the beginning of my pregnancy my insulin requirements sky rocketed, very similar to premenstrual cycle. At around 9 weeks gestation my insulin requirements dropped significantly and hypos became a huge risk."

It's also important to be aware that during pregnancy, sometimes hypos can occur without much (or any) warning. Preventing a hypo is better than treating one. Try not to miss any meals or snacks and check your blood glucose levels regularly.

While most women find that they need lower insulin doses in early pregnancy, this is not the case for everyone. Your diabetes in pregnancy team can help you with advice on individual insulin dose adjustments.

"Expect things to change! I think that is the biggest adjustment, just how frequently things are changing, especially if you're used to having quite stable blood glucose levels. Be flexible and ready to roll with what your levels are doing and it will be less stressful."

Mid to late pregnancy changes

From the second trimester of pregnancy, especially after 18 weeks your insulin requirements will usually start to rise. By around 30 weeks you may need up to two or three times as much insulin as you did before pregnancy. Hormones made by the placenta interfere with the way your insulin normally works, so as the pregnancy hormones rise, so does your need for insulin.

"My blood glucose levels were low in the first trimester, especially at night… In the second trimester, they started going up and I had to begin increasing my insulin. It's quite alarming going up to dosages you would never have contemplated before. My endocrinologist helped in assuring me all this is normal, and in finding the right levels. That was the biggest change, with my insulin needs going up so much, but once you get used to that, and the continual adjustment, it feels more normal again."

In the second half of your pregnancy you are likely to need more mealtime (rapid-acting/bolus) insulin, compared with the long-acting (basal) insulin. Insulin requirements tend to continue to rise until about 34 to 36 weeks, when they may plateau or start to fall a little. If you notice your insulin requirements fall significantly and rapidly in late pregnancy, promptly contact your diabetes in pregnancy team for advice.

Every woman's experience with managing diabetes during pregnancy will be different. Keep in close contact with your diabetes in pregnancy team to discuss changes to your diabetes management throughout pregnancy.

What to pack for hospital

When you're due to have a baby, packing your bag for hospital by 34 weeks of pregnancy is usually recommended. Below are suggestions on what to pack for mother, baby and support person, including suggested diabetes supplies. Your doctor or credentialled diabetes educator can provide individualised advice on what you need for managing your diabetes during labour and after the baby is born.

Paperwork

- ☐ Medicare card
- ☐ Antenatal record card
- ☐ Private health insurance details (if applicable)
- ☐ Hospital paperwork
- ☐ Your birth plan (it can be helpful to give a copy to your midwife in advance)
- ☐ Contact details for your diabetes in pregnancy team: including endocrinologist, credentialled diabetes educator and obstetrician
- ☐ Diabetes management plan including insulin dose adjustments and pump settings (taking a photo of this plan and storing it in your phone can be helpful)

For mum

- ☐ Comfortable/old clothes for labour (such as a loose t-shirt)
- ☐ Sleepwear, dressing gown, socks and slippers
- ☐ Maternity bras and underwear (high waisted underwear helpful with C-section)
- ☐ Breast pads
- ☐ Maternity pads
- ☐ Towel
- ☐ Personal toiletries for showering, moisturiser and deodorant
- ☐ Tooth brush and toothpaste
- ☐ Tissues, lip balm, hairbrush and hairbands
- ☐ Books, magazines, playing cards, notepad, pen, music (and headphones)
- ☐ Comfortable day clothes (front opening can be helpful for breastfeeding)
- ☐ Flip flops/thongs
- ☐ Washbag
- ☐ Clothes and shoes to wear home
- ☐ Phone and charger

For your baby

- ☐ Small beanie or hat
- ☐ Newborn nappies (8-10/day)
- ☐ Baby wipes
- ☐ Sleepsuits and singlets
- ☐ Socks or booties
- ☐ Baby blanket
- ☐ An outfit for the trip home
- ☐ Baby capsule (already fitted to your car)

For your partner or support person

- ☐ Water bottle and snacks
- ☐ Change of clothes
- ☐ Toiletries
- ☐ Camera
- ☐ Phone
- ☐ Money or credit card (for parking, meals etc.)

Diabetes supplies

- ☐ Blood glucose meter
- ☐ Blood glucose monitoring strips (more than what you think you'll need)
- ☐ Ketone test strips
- ☐ Fingerpricker and lancets
- ☐ Diabetes record book
- ☐ Insulin pen and pen needles/syringes
- ☐ Insulin pump supplies (if applicable) plus a back-up insulin pen
- ☐ Continuous Glucose Monitoring supplies (if applicable)
- ☐ Hypo treatments
- ☐ Snacks

Each hospital is different and has their own policies on what you can bring and what is provided during your stay, so check with the hospital and discuss what to pack with your midwife and diabetes health professionals. It is also a good idea to check hospital visiting hours beforehand.

Labour and birth

Your diabetes in pregnancy team will work with you towards the ultimate goal of having a healthy baby. They will discuss what to expect during labour and birth, including a plan for insulin adjustment, blood glucose management and who to contact if you go into labour earlier than expected.

“I spoke to my obstetrician very early on, and throughout my pregnancy about likely birthing options.”

Your diabetes in pregnancy team will work with you to aim for a natural birth close to your due date. It is usually recommended, that a woman with diabetes has her baby at around 37-38 weeks’ gestation. If you do not come into spontaneous labour by then, your labour will be ‘induced’, or possibly an elective caesarean section will be suggested. The obstetrician in your diabetes in pregnancy team will discuss delivery options with you, with the goal usually being a vaginal birth. It is important that you feel comfortable discussing these birthing options with your team of health professionals.

"Make sure you have plans in place, but also be prepared for them to change without notice. My obstetrician and endocrinologist worked together to make sure I had the best outcome possible."

If you go into labour spontaneously, it is best to go to hospital early for close monitoring of your diabetes and the baby's well-being.

Sometimes, an earlier birth may be recommended if there are concerns during your pregnancy, such as:

- high blood pressure
- pre-eclampsia
- your baby becoming too big or not growing enough
- a substantial fall in your insulin requirements or;
- change in your baby's patterns of movement.

If you need to have your baby early, you are likely to be given a cortisone-like medication (betamethasone, Celestone) to help mature your baby's lungs before birth. These medications usually increase blood glucose levels for several days. In this situation, your doctor would usually recommend a hospital admission to monitor you and your baby and manage your blood glucose levels. An intravenous insulin infusion or intensive insulin therapy would be used to help keep your blood glucose levels in the target range at this important time before your baby is born.

"Have a plan, then be prepared for your plan to not always unfold how you expect it to. In my experience I was more just go with the flow and probably should have been more proactive in asking questions. I was brought in at 36 weeks and put on steroids for early induction. The steroids sent my glucose levels haywire and I was monitored in hospital during this process."

Induction of labour

Depending on how your pregnancy is progressing, you may need to have an induction, which means helping your body to start labour. An induction can be performed in several ways and sometimes a combination of two or more methods will be used.

These include:

- Gel insertion – this involves inserting a prostaglandin pessary or gel into your vagina, to help the cervix to soften and open. This, in turn, tells your uterus to start contracting. Some women need two or three doses of gel before labour begins.
- Balloon induction – this involves a catheter being inserted into your vagina. Water is then pumped into the device, which gently puts pressure on your cervix, assisting dilation and encouraging your uterus to start contracting.
- Rupture of membranes (breaking waters) – this method involves rupturing the membrane, or bag of fluid, around your baby. Your membrane is gently broken using an 'amnihook', which looks like a long crochet hook, and the gush of fluid may encourage your uterus to start contracting and bring on labour.
- Oxytocin drip – this method involves an intravenous (IV) line (or drip) being inserted into a vein in your arm, and the oxytocin hormone being slowly delivered into your blood to help your uterus start contracting. The drip may be used alone or with a gel insertion.

When an induction is planned, ask your diabetes in pregnancy team to develop a plan with you for managing your diabetes. This will include adjustment of your insulin doses/pump rates or changing the way insulin will be delivered during labour.

Managing diabetes during labour

Your own blood glucose levels in the time leading up to the birth have an important effect on your baby's blood glucose levels. The higher your blood glucose, the greater the risk of hypoglycaemia in your newborn baby. Keeping blood glucose levels close to the target range during labour, helps reduce the risk of your baby having low blood glucose levels at birth.

When you are in labour, you will be under the care of your diabetes in pregnancy team including your midwife, obstetrician and endocrinologist/ diabetes specialist. Your blood glucose levels will be monitored frequently (usually hourly) and there will be regular contact with your diabetes team, who will make adjustments to the amount of insulin you are being given to keep your blood glucose in the target range. If you are using CGM or Flash GM, this may be continued throughout labour if you wish. CGM and Flash GM do not replace finger prick blood glucose monitoring, but can be helpful to show glucose trends and offer reassurance about glucose levels during labour and birth.

An intravenous (IV) insulin infusion and IV glucose (sugar) are often used throughout labour, which allow small amounts of insulin and glucose to run into your blood continuously. Alternatively, rapid acting insulin injections every two hours may be used during labour to manage your blood glucose levels.

"Ensure that the plan for labour/deliver is clearly communicated to BOTH you and your partner, and be explicit about how your diabetes should be managed."

If you use an insulin pump, talk to your diabetes in pregnancy team in advance about how to best manage your pump during labour and delivery. This will involve modified basal rates and smaller bolus doses, as well as ensuring your infusion site is away from the abdominal area. If you have a planned delivery date, change your cannula the day before. Be sure to have a spare infusion set when you go to the hospital. Not all hospitals are familiar with pumps. It may be recommended that you have an intravenous insulin infusion or frequent small doses of subcutaneous insulin.

"Ask your health professionals who is going to be making the diabetes decisions during the various stages of labour? Will my endocrinologist be contacted? Will I be able to keep your pump on? Who will make the decision to remove the pump and start insulin/glucose infusions?"

Caesarean section

From around 35-36 weeks, your doctor will discuss with you, a plan for your baby's birth. If your doctor is concerned about you not being able to have a vaginal birth (for example, if they suspect your baby is too large, is breech (bottom first) or there are other obstetric problems), they will discuss with you the possibility of a planned caesarean section.

If a caesarean section is advised, it will be according to your obstetric needs, not because you have diabetes. Birth by caesarean section is not a decision taken lightly, as there are risks involved with such major surgery. The medical decision to perform a caesarean section should be discussed with you in detail; your doctor can explain the risks and benefits involved.

If you are having a caesarean section, you will usually have to fast for about six hours beforehand, so you should discuss with your diabetes in pregnancy team the options for managing your blood glucose levels and insulin doses during this time. It's a good idea to make a management plan with your diabetes in pregnancy team well before the birth.

In some circumstances a caesarean section is undertaken as an 'emergency'. This might happen if there are problems with you or your baby, or because the labour is not progressing the way it should.

"I experienced induced labour for roughly 12 hours before having an emergency C-section. Luckily throughout this experience I was in the hospital on a glucose drip, my diabetes was relatively stable throughout both processes."

ACTION:

- Talk to your diabetes in pregnancy team before labour about pain relief options, diabetes management and any other questions or concerns you may have.
- Have a written plan for your diabetes management during birth, regardless of the birthing method.

Managing diabetes after the birth of your baby

After your baby is born, your diabetes team will review your diabetes management You are likely to need less insulin for the first few days after the birth and your target blood glucose levels will be higher (usually between 5 and 10mmol/L).

At this stage when you have a new baby to care for, it's very important to try to avoid hypos. Your diabetes in pregnancy team will discuss changes to your diabetes management plan with you.

After your baby is born

After the birth, a paediatrician, your obstetrician or a midwife will examine your baby. If your blood glucose levels have been stable during your pregnancy and the birth, and your baby has no problems, your baby will go with you to your hospital room where skin-to-skin contact and breastfeeding is encouraged.

If your baby is born very large, very small, prematurely or is having breathing problems or low blood glucose levels, they may need to be observed in a special care nursery for a day or two. Not all maternity hospitals are equipped with a high-level special care nursery, so in some circumstances your baby may need to be transferred to another hospital.

Skin-to-skin contact between you and your baby will be encouraged at birth because it will help you to develop a close bond with your baby. It also allows your baby to suckle and will help to keep your baby's temperature more stable. Ask your midwife about skin-to-skin contact if you and your baby need to be separated.

Your baby's blood glucose level

Your baby will be checked for low blood glucose levels for at least the first 24 hours after birth. This is done by heel prick – usually within 2 hours of birth or before your baby's second feed. Blood glucose checks are done at regular intervals until the baby's blood glucose levels are in range.

Heel prick blood glucose tests are done to check for low blood glucose levels. This is not to check if your baby has diabetes and does not mean that your baby will develop diabetes in the future.

If your baby's blood glucose level is low (less than 2.6mmol/L), your baby may need to have supplementary feeds or some glucose. Talk to your midwife about using your breastmilk for supplementary feeding.

ACTION:

- Ask your midwife or diabetes in pregnancy team about guided tours of the maternity service at your hospital before your due date.
- Ask about early skin-to-skin contact with your baby.
- Ask about how to contact a lactation consultant, should you need support once home.

Insulin changes after the birth

Changes after the birth

Once your baby is born and your placenta is delivered, your insulin requirements fall dramatically. A mother's insulin requirements tend to be very low for the first few days after the baby is born and then gradually increases. However, if you had Celestone injections before the birth, your insulin requirements will probably fall less. Your target blood glucose levels should be reviewed after the birth, and frequent blood glucose monitoring is recommended.

Target blood glucose levels after the birth of your baby will be higher than your pregnancy targets. This helps reduce the risk of hypos while you are establishing breastfeeding and a new routine with your baby. The Australasian Diabetes in Pregnancy Society (ADIPS) recommends keeping blood glucose levels in the 5–10mmol/L range at this stage.

In the first few weeks, you will usually need less insulin than you did before the pregnancy. If you are breastfeeding, once your milk comes in your insulin requirements may decrease again. Your endocrinologist or credentialled diabetes educator will help you re-adjust your insulin doses after birth. In the later stages of pregnancy or before you go home from hospital, discuss with your diabetes health professionals the best way of contacting them after your baby is born. It can be challenging managing your diabetes in the early weeks/months with a new baby.

ACTION:

- Have an insulin management plan for immediately after the birth of your baby.
- Carry hypo treatment with you at all times.
- Keep hypo treatment by your bedside and within easy reach if you are breastfeeding.
- Check that you have glucose gel and glucagon - and that your partner/family knows how and when to use it.
- Make a plan with your diabetes in pregnancy team about when and how often to check your blood glucose levels.
- Review your sick day management plan in consultation with your endocrinologist/diabetes specialist or credentialled diabetes educator.
- Have a list of contact details for your diabetes in pregnancy team and have these readily available.

"I found it harder to care about my blood glucose levels once my baby was born. I had frequent lows which were made worse because I was breastfeeding."

Breastfeeding

Breastfeeding has many benefits, for both you and your baby. These include benefits for your baby's immune system, growth and development, and it can also help with bonding between you and your baby. Breastfeeding may also reduce the risk of your baby developing diabetes later in life. It may also help you with returning to your pre-pregnancy weight.

Breastfeeding and diabetes

Most women with diabetes are able to breastfeed their babies. It's important to keep in mind though, that breastfeeding may need some practice, support and persistence.

It's a good idea to find out as much as you can about breastfeeding from your midwife or a lactation consultant before your baby is due. A lactation consultant is a specially trained health professional who can provide information, support and advice about breastfeeding. Ask your midwife or obstetrician about how to access a lactation consultant in your local area.

Women with diabetes sometimes find that there is a delay with their breast milk 'coming in'. The milk usually comes in on the third or fourth day after the birth, but it may be delayed by 24 to 48 hours. If your baby is born early it can sometimes be more challenging to establish breastfeeding initially.

Your midwife or lactation consultant may discuss with you the option of antenatal expressing and storing colostrum (early breast milk) before the birth of your baby. It's important to note however, that the advantages and disadvantages of antenatal expressing for mother and baby are still being researched. Ask your diabetes in pregnancy team for advice.

Early breastfeeding

Skin-to-skin contact and breastfeeding your baby as soon as possible after delivery is recommended. Breastfeeding at least every three to four hours during the first few days will help your baby maintain their blood glucose levels. If your baby is at high risk of hypoglycaemia, you may be advised to breastfeed at least every three hours.

If your baby is in the nursery, ask your midwife about breastfeeding or expressing milk (colostrum) within the first four hours of your baby's birth. Your breasts make milk on a supply-and demand basis. If you express, your breasts will keep producing milk which you can then give to your baby by bottle, spoon or tube.

Blood glucose levels

Your insulin requirements may be quite small in the first few days or so after birth, and you will still need to do frequent blood glucose monitoring so you can adjust your insulin doses. At this stage it is recommended to keep your blood glucose levels between 5 and 10mmol/L, not lower, to reduce the risk of hypos.

It can be difficult to keep blood glucose levels within the recommended range while breastfeeding, so contact your diabetes health professionals for support to adjust your insulin doses. Talk to your accredited practising dietitian about your diet and nutritional needs for breastfeeding.

Hypos and breastfeeding

Your blood glucose levels may fall rapidly during and following breastfeeding, just like with any other physical activity, so be prepared to treat hypos while you are breastfeeding.

"Breastfeeding does cause hypos, so I would normally eat a snack at the same time as feeding. It is also important to keep your fluids up whilst feeding."

Some women find that their blood glucose levels can fall by 3 to 5mmol/L during a breastfeed, so it's important to have some hypo treatment within reach while you are breastfeeding.

"Make sure you have juice or other fast acting carbs handy at all times so you can treat hypos when you are breastfeeding, if necessary."

CGM or Flash GM can be helpful to closely monitor your glucose levels at this time.

Ask your diabetes in pregnancy team for more information or go to **ndss.com.au/cgm**.

You may need to:

- Discuss strategies to prevent hypos with your health professional.
- Develop a routine for feeding your baby, so you can have your meals on time and reduce your risk of hypos.
- Snack before or during breastfeeding (e.g. fruit, crackers, sandwich).
- Speak with your health professionals about adjusting your insulin doses/pump rates.
- Consider using CGM or Flash GM to monitor your glucose levels.
- Treat hypos as soon as you notice any symptoms.
- Check your blood glucose after a feed, to see how much your levels are falling, especially during the night.
- If you don't have a support person at home, have your phone on hand in case you need assistance.

Always have some hypo treatment within reach while you are breastfeeding.

Breastfeeding information and support

Your midwife or lactation consultant can support you to establish breastfeeding and give you strategies for successful breastfeeding. Most Australian hospitals have baby-friendly health initiatives to help support early breastfeeding.

"Find a midwife that suits your style and ask them for help whenever they are working… There are also a few free services around for help with breastfeeding once you have left hospital."

Although any breastfeeding can be of benefit for you and your baby's health, current guidelines recommend exclusive breastfeeding to around 6 months of age (when solid foods are introduced), then continued breastfeeding until 12 months of age or beyond.

Establishing breastfeeding can take time and sometimes be a little challenging, so make sure you get all the information and support you need. If despite your best intentions and efforts, breastfeeding doesn't work out, you may need extra emotional support at this time.

For breastfeeding information and support, contact the National Breastfeeding Helpline on **1800 686 268**. Support is available 24 hours a day, 7 days a week.

Local breastfeeding support networks are also available in hospitals and in the local community. Ask your midwife, lactation consultant or child and family health nurse for more information.

ACTION:

- Talk to your diabetes team about targets for blood glucose levels and insulin adjustments during breastfeeding.
- Set up a 'feeding space' with snacks, hypo treatments, water and diabetes supplies within reach.
- Eat regular meals and snacks to prevent hypos.
- Monitor your blood glucose levels more frequently and discuss any concerns with your diabetes health professionals.
- Talk to your midwife or lactation consultant about breastfeeding strategies.
- Ask about storing breastmilk to supplement feeds, if necessary.

"Breastfeeding was so hard to master! But then so wonderful and easy..."

Going home and the future

Taking home a new baby is incredibly exciting, but this can also be a stressful time. Some women with diabetes find it very hard to make their own health a priority and give their diabetes the attention it demands during this busy period.

Take advantage of any help your family and friends can offer. If you don't have any support nearby, it may be a good idea to organise help with things like shopping, cooking and housework. It is best to start thinking about this and getting plans in place before the baby arrives.

"…It can be tough and the lack of solid sleep is exhausting. Get help from whoever is willing to offer it. Don't be too proud to ask, even if it is just someone trusted taking your baby for a walk so you can have a shower, without constantly worrying that your baby is crying. Seek professional help if you are worried about anything at all. Community Health at your local hospital is a wonderful resource."

When you first go home with a new baby, especially for the first few weeks, you will be kept busy looking after your baby. You may find that this new routine, along with disturbed sleep, can make it difficult to manage your diabetes as well as you would like. To make sure that you and your baby stay healthy and safe, remember the following:

- Don't forget to take your insulin.
- Avoid hypos so that you are safe to take care of yourself and your baby.
- Check your blood glucose levels at least four times a day, so that you know whether your blood glucose levels are dropping, and to guide your insulin doses. CGM or Flash GM (see page 6) may be suggested in the first few months after your pregnancy. This can be very helpful in managing your blood glucose levels at this time. Access to fully subsidised CGM or Flash GM devices is available through the NDSS for a period of three months after your baby's expected date of birth.

» Aim to keep most of your blood glucose levels between 5 and 10mmol/L.
» Make appointments with your diabetes health professionals, they can continue to help you manage your diabetes after your baby is born.

"Going home with a new baby is the best feeling in the world. Overwhelming, but in the best way possible. Every day is a challenge and there is no rush in finding your feet, I'm still learning as a mother to this day. Use the support around you, whether it is family, midwife program, mothers' group or early childhood centres these people are here to help and can offer guidance if you are unsure of anything."

Contraception and future pregnancies

Make sure you are using an effective form of contraception to avoid having another pregnancy before you are ready. Remember that planning another pregnancy and having your diabetes well managed beforehand will help you to have a healthy baby.

If you decide to not have any more children, you may want to consider a tubal ligation or discuss a vasectomy with your partner. There are also a number of very effective long-term but reversible contraception options, including intra-uterine devices (IUDs) and hormone implants. Discuss the available options with your doctor.

Looking after your health

Once you are getting more sleep and managing a new routine with your baby (usually three to six months after the delivery), it is a good time to become more aware of your health needs again. Review your diabetes management with your diabetes health professionals to keep yourself healthy so that you feel well, reduce the risk of long-term health problems and enjoy your new baby.

"…with sleep deprivation, breastfeeding and changing hormones, my levels were up and down for a few months. I just rolled with it and eventually life settled down and routine helped me to refocus."

ACTION:

- Take the time to look after yourself, as well as your baby.
- Make sure you have the contact details for your diabetes health professionals for advice and support on managing your diabetes after your baby is born.
- Review your family planning and contraception; whether you intend to have another baby or not.
- Make an appointment with your diabetes in pregnancy team or doctor before planning your next baby.
- Talk to your GP or endocrinologist/diabetes specialist about annual screening for diabetes complications (kidneys, eyes, nerves etc.).

"When you arrive home, you'll probably feel totally unprepared and incapable of raising this tiny human. But with each day comes experience and success, and all things will eventually settle, both your baby and your diabetes."

Pregnancy and diabetes checklist

The following checklist provides information to guide you through the different stages of pregnancy - from pre-pregnancy planning through to delivery and going home. Use this checklist together with your health professionals to help you manage your diabetes and your pregnancy.

Before pregnancy* (at least 3 months)

- ☐ Discuss your plans to become pregnant and contraception use with your doctor.
- ☐ Referrals to see diabetes health professionals for pre-pregnancy care.
- ☐ Find out about your options for specialised maternity care.
- ☐ Discuss individual blood glucose targets.
- ☐ Discuss CGM or Flash GM with your diabetes health professionals and consider applying for access to these devices through the NDSS.
- ☐ Aim for an HbA1c of 6.5% (48mmol/mol) or less (discuss your individual target).
- ☐ Review your diabetes management plan.
- ☐ Diabetes complications assessment (for kidneys, eyes and nerves) and dental health check.
- ☐ Review of medications including insulin type, requirements and delivery, blood pressure and cholesterol lowering medication.
- ☐ Review hypo prevention and treatment plan.
- ☐ Glucagon script and training for support people in the use of glucagon.
- ☐ Review sick day management plan.
- ☐ Accredited practising dietitian review of weight and diet for diabetes and pregnancy.
- ☐ Start high-dose folic acid supplement (ideally 3 months before conception).
- ☐ Start taking a supplement containing iodine.
- ☐ Thyroid function tests and a coeliac screen.
- ☐ Blood test for rubella and chicken pox immunity and if needed, immunisation at least one month before conception and check for hepatitis B immunity (and immunisation, as needed).

* While it is ideal to take these actions while planning for pregnancy, there are still many things you can do in the early weeks of pregnancy to make sure your pregnancy and baby are healthy.

The first 12 weeks

- ☐ GP appointment to confirm pregnancy, discuss booking birth hospital and diabetes in pregnancy team appointments*.
- ☐ Early pregnancy blood tests including HbA1c.
- ☐ Ultrasound at 7-8 weeks (to confirm due date).
- ☐ Review of your medications.
- ☐ Review blood glucose levels, insulin requirements and blood pressure.
- ☐ Discuss CGM or Flash GM with your diabetes health professionals and consider applying for access to these devices through the NDSS.
- ☐ Review hypo prevention and treatment plan.
- ☐ Review sick day management plan.
- ☐ Maintain an adequate diet for pregnancy.
- ☐ Continue taking high-dose folic acid supplement (for the first 3 months).
- ☐ Keep in touch with how you feel and talk to a health professional if needed.

* Frequent contact with your diabetes in pregnancy team throughout pregnancy is recommended.

12 – 14 weeks

- ☐ Nuchal translucency (NT) scan and associated blood tests (optional).
- ☐ Book 18-20 week ultrasound.
- ☐ Review blood glucose levels, HbA1c, insulin requirements and blood pressure.
- ☐ Check pregnancy weight gain.
- ☐ Keep in touch with how you feel and talk to a health professional, if needed.

18 – 20 weeks

- ☐ Ultrasound (to check the placenta and your baby's development).
- ☐ Discuss ultrasound results.
- ☐ Review blood glucose levels, insulin requirements, blood pressure and any diabetes complications.
- ☐ Check pregnancy weight gain.
- ☐ Keep in touch with how you feel and talk to a health professional, if needed.

24 – 40 weeks

- ☐ Regular ultrasounds to assess your baby's growth and wellbeing (every 2-4 weeks from 28 weeks).
- ☐ Blood and urine tests (according to doctor's assessments).
- ☐ Regular review of your baby's wellbeing by obstetric team.
- ☐ Blood pressure checked at each obstetric/diabetes visit.
- ☐ Discuss breastfeeding with lactation consultant or midwife.
- ☐ Review blood glucose levels, HbA1c and insulin requirements.
- ☐ Check pregnancy weight gain regularly.
- ☐ Book into antenatal classes.
- ☐ By 36 weeks, discuss obstetric birth plan (the type and timing of the birth).
- ☐ Discuss diabetes management during labour/delivery and develop a written plan.
- ☐ Pack your hospital bag, including diabetes supplies.
- ☐ Keep in touch with how you feel and talk to a health professional, if needed.

Breastfeeding & going home

- ☐ Seek advice/help with breastfeeding.
- ☐ Review blood glucose levels and insulin requirements.
- ☐ Review hypo prevention and treatment plan.
- ☐ Contact details for diabetes team for support and follow-up.
- ☐ Arrange follow-up appointments.
- ☐ Discuss family planning including contraception and pre-conception care for next pregnancy.
- ☐ Keep in touch with how you feel and talk to a health professional, if needed.

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This booklet has been reviewed and endorsed by the Australasian Diabetes in Pregnancy Society (ADIPS).

ADIPS
Australasian Diabetes in Pregnancy Society

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